UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,687	04/09/2007	Kaoru Nomichi	19036/41822	3602

4743 7590 09/13/2010

MARSHALL, GERSTEIN & BORUN LLP
233 SOUTH WACKER DRIVE
6300 WILLIS TOWER
CHICAGO, IL 60606-6357

EXAMINER	
LEE, GILBERT Y	

ART UNIT	PAPER NUMBER
3676	

MAIL DATE	DELIVERY MODE
09/13/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,687	NOMICHI ET AL.	
	Examiner	Art Unit	
	GILBERT Y. LEE	3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/13/06 & 6/5/06* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 6/30/10 has been entered.

2. The drawings filed on 4/13/06 and 6/5/06 are accepted by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balsells (US Patent No. 4,890,937) in view of Balsells (US Patent No. 6,161,838).

Regarding claim 1, the Balsells '937 reference discloses a gas seal structure (Fig. 4) capable **of being used** with a gas having a high permeability with respect to a rubber material, the gas seal structure comprising:

a main seal means (124) that is made of the rubber material (Fig. 4) and is disposed between two seal surfaces (e.g. surfaces of 12b and 16);

a sub-seal means (130) that is disposed between the two seal surfaces (Fig. 4), the sub-seal means being located closer to a higher-pressure region (e.g. right region of Fig. 4) than the main seal means (Fig. 4) and being provided with a concave groove (e.g. groove of 130 holding spring); and

a pressure variation reducing means (e.g. groove between grooves holding elements 124 and 130) that is disposed between the main seal means and the sub-seal means (Fig. 4) and has a variation reducing space (e.g. space of groove) connected to a gap (e.g. 142 or gap between groove holding 124 and 130) formed between the two seal surfaces and having a volume (e.g. volume of groove), including the seals being made of any material (Col. 3, Lines 50-53), the variation reducing space being closed by the main seal means and the sub-seal means (Fig. 4).

However, the Balsells '937 reference fails to explicitly disclose the sub-seal means being made of resin.

The Balsells '838 reference, a seal system, discloses making seals of a resin (Col. 1, Lines 19-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the sub-seal of resin in the Balsells '937 reference in view of the teachings of the Balsells '838 reference in order to provide a material that has relatively low friction and is chemically inert and can withstand a variety of temperatures (Balsells '937, Col. 1, Lines 19-27). Note that the modified Balsells reference discloses the structural limitations of claim 1 and the pressure variation reducing means of the Kano reference is **capable of** inhibiting occurrence of a blistering phenomenon in the main seal means.

Regarding claim 2, the Balsells '937 reference, as modified in claim 1, discloses the sub-seal means being disposed such that the concave groove opens toward the higher-pressure side region (Balsells '937, Fig. 4).

Regarding claim 3, the modified Balsells '937 reference discloses the invention substantially as claimed in claim 1.

However, the Fig. 4 of the Balsells '937 reference fails to explicitly disclose the concave groove of seal 130 opening toward a lower-pressure side region.

Fig. 1 of the Balsells '937 reference discloses making the concave groove of a seal, close to a high pressure region, open toward a lower-pressure side region.

It would have been obvious to one of ordinary skill in the art at the time of the invention to reverse seal 130 of Fig. 4 in view of the teachings of Fig. 1 of the Balsells '937 reference in order to limit the pressure acting on main seal 124 and since a reversal of parts would provide predictable results.

Regarding claim 4, the Balsells '937 reference discloses a gas seal structure (Fig. 4) comprising:

a main seal (124) comprising a rubber material (Fig. 4), the main seal between two seal surfaces (e.g. surfaces of 12b and 16), the rubber material having a high permeability when exposed to a gas having a low molecular weight (Fig. 4);

a sub-seal (130), the sub-seal disposed between the two seal surfaces (Fig. 4), the sub-seal disposed closer to a higher-pressure region (e.g. right region of Fig. 4) than the main seal (Fig. 4);

a concave groove (e.g. groove of 130) formed in the sub-seal (Fig. 4);

a gap (e.g. gap between 12b and 16) formed between the two seal surfaces adjacent the sub-seal (Fig. 4);

an enclosed pressure variation reducing space (e.g. groove between grooves holding elements 124 and 130) disposed between the main seal and the sub-seal and in flow communication with the gap (Fig. 4), the pressure reducing space closed by the main seal and the sub-seal (Fig. 4), the pressure variation reducing space having a volume arranged to inhibit occurrence of a blistering phenomenon in the main seal (Fig. 4).

However, the Balsells ‘937 reference fails to explicitly disclose the sub-seal means being made of resin.

The Balsells ‘838 reference, a seal system, discloses making seals of a resin (Col. 1, Lines 19-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the sub-seal of resin in the Balsells ‘937 reference in view of the teachings of the Balsells ‘838 reference in order to provide a material that has relatively low friction and is chemically inert and can withstand a variety of temperatures (Balsells '937, Col. 1, Lines 19-27). Note that the modified Balsells reference discloses the structural limitations of claim 1 and the pressure variation reducing means of the Kano reference is **capable of** inhibiting occurrence of a blistering phenomenon in the main seal means.

Regarding claim 2, the Balsells ‘937 reference, as modified in claim 4, discloses the sub-seal means being disposed such that the concave groove opens toward the higher-pressure side region (Balsells ‘937, Fig. 4).

Regarding claim 3, the modified Balsells '937 reference discloses the invention substantially as claimed in claim 4.

However, the Fig. 4 of the Balsells '937 reference fails to explicitly disclose the concave groove of seal 130 opening toward a lower-pressure side region.

Fig. 1 of the Balsells '937 reference discloses making the concave groove of a seal, close to a high pressure region, open toward a lower-pressure side region.

It would have been obvious to one of ordinary skill in the art at the time of the invention to reverse seal 130 of Fig. 4 in view of the teachings of Fig. 1 of the Balsells '937 reference in order to limit the pressure acting on main seal 124 and since a reversal of parts would provide predictable results.

Response to Arguments

4. Applicant's arguments filed 6/30/10 have been fully considered but they are not persuasive.

In response to applicant's arguments, the recitation "for use with a gas having a high permeability with respect to a rubber material" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Furthermore, the

current disclosure only requires a natural or synthetic rubber which each clearly shown in Fig. 4 of the Balsells '937 reference.

With regards to the applicant's argument of the material of the sub-seal, the argument is not persuasive because the Balsells '838 reference is a clear teaching that a cantilevered lip seal can be made of a resin material. The Balsells '937 already teaches the claimed structure.

In response to applicant's argument that the Balsells '937 reference is to be used with lubricating oil, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

With regards to the applicant's argument of the pressure variation reducing space of the Balsells '937 reference not being enclosed, the argument is not persuasive because if the space were not enclosed, then it would be opened to the atmosphere, which clearly it is not.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GILBERT Y. LEE whose telephone number is (571)272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shane Bomar can be reached on 571-272-7026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. Y. L./
Examiner, Art Unit 3676

/Vishal Patel/
Primary Examiner, Art Unit 3676